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THE DIPTERA OF BRITISH COLUMBIA.

(First Part.)

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During the summers of 1901–2, while at the Minnesota Seaside Station on Vancouver Island, Professor Raymond C. Osburn collected a number of Diptera, and during these same seasons and the past summer Professor R. V. Harvey, of The Queen's School at Vancouver, British Columbia, collected in the same order. Since so little has been published on the Diptera of that province, we have thought that even a short paper on the Dipterological fauna would be of interest and probably of some value.

These gentlemen have very kindly turned over their material, with the exception of the Syrphidæ, with the request that I should make the determinations and publish the results. I have encountered more or less difficulty in making these determinations, but have been ably aided in some cases by Mr. D. W. Coquillett, of the U. S. National Museum. Besides a number of specimens still undetermined, four new species have been described from the material. Two of these are described in this paper, one, *Anthalia stigmalis*, was described by Coquillett in the Proceedings of the Entomological Society of Washington, V. 268, and I described the fine Crane-fly, *Pedicia magnifica*, in The Ohio Naturalist, III., 417.

I have not considered the Syrphidæ in this part of the paper. Professor Osburn paid special attention to collecting the members of this family, and has spent much time in studying them and comparing with types in the U. S. National Museum. It is his intention to follow with a second part and give full notes regarding the field observations taken on many of the species.

As the field-work for this paper was done by others, I have no extended notes to offer, but in working over the material some few things have suggested themselves.

The list given below includes a number of species that have been taken in California, as well as a number that have been taken in Alaska. Some of the species are known to occur all along the coast from California to Alaska, and are thus proven to have a wider range than most species are supposed to have. *Pedicia obtusa* and *Tabanus Sonomensis* were described from California; I have identified them from British Columbia, and Coquillett reports them from among the material taken in Alaska by the Harriman Expedition. Other species in the list may be shown to have the same or even a much wider range.

Only two species of mosquitoes are included in the list, and we have two others not yet determined, but this does not indicate that there is a dearth of these insects in the region, for Dr. Dyar has recently published a paper in the Proceedings of the Entomological Society of Washington, in which he enumerates twenty species from British Columbia. This serves to show us that there is plenty of opportunity for entomological work in this interesting region, and that the most interesting results are obtained by taking a small group and thoroughly collecting the forms belonging to it.

The Tabanidæ of British Columbia, as well as from the western United States, are a perplexing lot, and I have spent much time working on them, sometimes with satisfactory results, sometimes otherwise. Excellent characters have been found for some of the species, but for others the distinguishing marks are not apparent as yet. It seems that some of the species are quite variable, and that there are more species described than can be differentiated. Nearly all the species of Tabanus belong to the sub-genus Therioplectes, only two of those received having the eyes nonpubescent. In California *Tabanus punctifer* and *ægrotus* occur together, but although I have repeatedly received the latter from British Columbia I have never known of a record for the former.

The family Leptidæ is represented by a number of interesting forms. *Xylomyia parens*, Will., appears to be rather commonly met with. The two specimens before me were taken at Vancouver on June 21st and July 4th. The species looks something like some of the sawflies, and can easily be confounded with them by the inexperienced. The species of Symphoromyia are said to bite severely, and are therefore somewhat of an annoyance to the collector and to stock in that region.

I have been interested in studying *Rhynchocephalus Sackenii*, Will., for it is surely an interesting form, and represents a family not commonly met with in North America. I have seen only one specimen, and that was taken at Vernon, which must be a splendid collecting region, if one can judge from the species taken there.

Fully as interesting as the last species is *Pterodontia misella*, O. S., taken at Wellington, July 6th. The original description of the species was written from a specimen taken in Oregon by Henry Edwards.

The family Tachinidæ is represented by numerous species, some of which are widely distributed, but a number are known only from that region. The presence of these flies is always welcomed, for we have learned of so much good accomplished by them that we suspect their mission is a beneficial one, and are willing to let them have their way, especially if we note in them a tendency to direct their attacks to any of the species that are known to be injurious. The following breeding records accompanied the specimens sent : *Panzeria ampelus*, Walker, reared from a chrysalis of *Clisiocampa* (?) *Americana; Frontina Frenchii*, Will., reared from *Telea polyphemus* ; and *Bombyliomyia abrupta*, B. and B., reared from pupa of *Halisidota maculata*.

Pyrellia ænea, Zett., has not been reported from North America heretofore, but some specimens before me agree so well with the description of that species as given by Schiner that I am well satisfied to give them that name. The group of Muscids to which this species belongs is widely distributed in this country and in Europe, so it is not strange to find it here, but the detection of the presence of an introduced species is always attended with more or less interest.

It is interesting to note that the usual stock pests are present in British Columbia as well as in other parts of North America. *Simulium fulvum*, numerous species of mosquitoes, horse-flies, the bot fly, and species of the genus Symphoromyia are noted, and must be a consideration with reference to the stock interests of the province.

A number of species commonly known as scavengers are noted, and it seems that these are more numerous in individuals than is usually common in much of the western country.

Euparyphus obliquus, n. sp.—Female : Black, with yellow markings on head, thorax and abdomen. Face black, with an oblique yellow fascia on each side about midway between the vertex and the insertion of the antennæ. Antennæ black at each extremity, with the intervening parts rather light brown. Face black, with a triangular yellow spot on the anterior part of each cheek, and a very narrow whitish pollinose space along each eye, posterior orbits yellow, occiput shining black. Thorax black, with yellow on each half, as follows: a narrow dorsal line from anterior border to beyond the suture, a large spot distinctly furcate before, above the base of the wing, an elongate triangular spot before the suture, a small humeral spot narrowly connected with a stripe, which reaches the base of the wing, and which is five or six times as wide posteriorly as where it joins the humeral spot, a rather large geminate spot below the base of the wing, and one or two small spots above the posterior coxa Scutellum yellow, with the base narrowly shining black; halteres yellow; legs yellow, except the median part of each femur, which is black; wings hyaline, stigma and principal veins yellow, third vein not furcate. Abdomen black, with yellow on each half, as follows: a narrow lateral margin connected with a small spot on second segment, an oblique fascia on each of the third and fourth segments, and the rather broad apex of the fifth segment; venter black, with irregular yellow patches on the middle of the second and third segments. Length, 6 millimeters.

Habitat: Taken at Vernon, British Columbia, August 8th, 1902.

On account of the oblique yellow markings on the front, the name *obliquus* is given this species.

We hesitated at first to describe this species from a single specimen, but as we have studied practically all the types of the species of the genus without identifying the specimen, have concluded to name it.

Anthrax Harveyi, n. sp.—Ground colour deep black, clothed above with light yellow and golden yellow pile, beneath with black pile. Head black, face and front clothed with black pile, proboscis projecting slightly beyond the margin of the mouth. Thorax clothed on the dorsum and sides with rather long, light yellow pile, on the sternum with black pile, legs black, with black hairs, and all the tibiæ with distinct spines, wings hyaline except costal cells and basal areoles, which are black; the branching of the second and third veins takes place almost opposite the small cross vein, and the common stock of these veins is narrowly margined with black almost to where they branch, halteres yellow, of nearly the same colour as the pile of the sides and dorsum of the thorax. Abdomen with the dorsum clothed with long and rather dense pile, that on first segment light yellow and on the remaining segments golden yellow, a few black hairs at the apex of the abdomen, venter entirely clothed with black hairs.

Total length 8–10 mm. The species seems to be related to *fulviana*, but besides being smaller differs in the colour of the vestiture of the body.

Habitat: Mount Cheam, near Agassiz, British Columbia.

Professor R. V. Harvey, who collected the specimens, and after whom the species is named, sends the following note: Mount Cheam is a peak in the Cascade Range, and rises abruptly from the west bank of the Frazer River opposite Agassiz station, on the Canadian Pacific, about 70 miles from the coast. It attains a height of 8,000 feet, but the spot where these specimens were obtained was some 1,500 feet lower, in a grassy valley clothed in brake-fern and various flowering plants. The species appeared to haunt a clump of low bushes of a species of mountain ash, whose flowers seemed to attract insects in some numbers. Most of the specimens were taken while resting on bare stony patches among the fern adjoining the clump mentioned.

If there are those who have aided me in any way in getting the material for this paper together, and if I have not given them credit, I wish to thank them for their part in the matter. I say this because I suspect that some of the specimens have been collected by parties not mentioned, but I have used the data at hand and given the facts so far as I am in a position to know them.

The following is a list of the species identified, and the localities where they were taken:

Simulium fulvum, Coq. Pt. Renfrew, Glacier.
Bibio nigripilosus, Lw. Victoria, Glacier.
Culex incidens, Thomp. Pt. Renfrew, Vancouver.
Culex varipalus, Coq. Pt. Renfrew.
Pedicia obtusa, O. S. Pt. Renfrew.
Pedicia magnifica, Hine. Pt. Renfrew.
Xylomyia parens, Will. Victoria.
Xylophagus decorus, Will. Wellington.
Xylophagus rufipes, Lw. Pt. Renfrew.
Sargus decorus, Say. Vancouver, Victoria.
Sargus viridis, Say. Vernon, Victoria.
Euparyphus obliquus, Hine. Vernon.
Odontomyia Hoodiana, Bigot. Vancouver.
Odontomyia pubescens, Day. Vernon.
Stratiomyia barbata, Lw. Victoria, Vernon.
Stratiomyia laticeps, Lw. Vernon.
Pangonia fera, Will. Agassiz.
Chrysops proclivis, O. S. Victoria.

Chrysops noctifer, O. S. Vancouver, Goldstream.
Silvius gigantulus, Lw. Pt. Renfrew.
Tabanus ægrotus, O. S. Victoria, Wellington.
Tabanus fratellus, Will. Victoria, Pt. Renfrew.
Tabanus sequax, Will. Vancouver, Glacier.
Tabanus Sonomensis, O. S. Pt. Renfrew, Vancouver.
Tabanus comastes, Will. Agassiz.
Tabanus septentrionalis, Lw. Vancouver.
Triptotrichia discolor, Lw. Wellington.
Leptis dimidiata, Lw. Vancouver, Pt. Renfrew.
Symphoromyia latipalpus, Bigot. Victoria.
Symphoromyia Johnsoni, Coq. Victoria, Glacier, Vancouver.
Dioctria albius, Walk. Victoria.
Scleropogon modestus, Lw. Victoria, Goldstream.
Scleropogon helvolus, Lw. Victoria.
Pogonosoma dorsata, Say. Victoria.
Cyrtopogon nebulo, O. S. Vancouver, Vernon.
Cyrtopogon aurifex, O. S. Victoria.
Cyrtopogon montanus, O. S. Vernon.
Cyrtopogon positivus, O. S. Pt. Renfrew.
Laphria astur, O. S. Victoria, Goldstream.
Laphria vultur, O. S. Vancouver, Pt. Renfrew.
Rhynchocephalus Sackenii, Will. Vernon.
Anthrax agrippina, O. S. Victoria, Vancouver.
Anthrax seminigra, Lw. Victoria.
Anthrax lateralis, Say. Pt. Renfrew, Goldstream.
Anthrax sinuosa, Wied. Pt. Renfrew, Victoria.
Anthrax Harveyi, Hine. Agassiz.
Exoprosopa dorcadion, O. S. Wellington.
Spogostylum œdipus, Fabr. Victoria.
Spogostylum pauper, Lw. Victoria.
Spogostylum melanopogon, Bigot. Vancouver.
Aphœbantus hirsutus, Coq. Goldstream.
Eclimus auratus, Will. Victoria.
Bombylius major, Linn. Victoria.
Bombylius lancifer, O. S. Vernon.
Systœchus candidulus, Lw. Victoria.
Thereva frontalis, Say. Vancouver.

Pterodontia misella, O. S. Wellington.
Empis luctuosa, Kirby. Wellington.
Empis virgata, Coq. Victoria, Vancouver.
Empis poplitea, Lw. Victoria.
Empis laniventris, Esch. Glacier.
Anthalia stigmalis, Coq. Pt. Renfrew.
Dolichopus occidentalis, Ald. Vancouver.
Dolichopus plumosus, Ald. Pt. Renfrew.
Hygroceleuthus crenatus, O. S. Vancouver.
Hygroceleuthus ciliatus, Ald. Pt. Renfrew.
Hercostomus procerus, Wheeler. Pt. Renfrew.
Physocephala Burgessii, Will. Glacier.
Myopa plebeia, Will. Halzic.
Myopa clausa, Lw. Vancouver.
Zodion fulvifrons, Say. Pt. Renfrew.
Gastrophilus equi, Fabr. Vancouver.
Gymnosoma fuliginosa, R. D. Goldstream.
Alophora æneoventris, Will. Vancouver.
Eulasiona Comstockii, Towns. Pt. Renfrew.
Plagia Americana, v. d. W. Pt. Renfrew.
Arphria ocypterata, Towns. Victoria.
Ocyptera Carolinæ, R. D. Vancouver.
Ocyptera dosiades, Walker. Pt. Renfrew.
Dionæa nitoris, Coq. Victoria, Vancouver.
Panzeria ampelus, Walker. Vancouver.
Gymnochæta alcedo, Lw. Vancouver.
Exorista blanda, O. S. Vancouver.
Tachina robusta, Towns. Victoria.
Blepharipeza adusta, Lw. Victoria.
Paraphyto borealis, Coq. Glacier.
Frontina Frenchii, Will. Vancouver.
Gonia antennata, Coq. Vernon.
Gonia capitata, DeG. Vancouver.
Masicera chætoneura, Coq. Glacier.
Peleteria tessellata, Fabr. Agassiz.
Peleteria robusta, Wied. Goldstream.
Echinomyia algens, Wied. Vancouver, Victoria.

Echinomyia infumata, Bigot. Victoria.
Echinomyia decisa, Walker. Glacier.
Epalpus bicolor, Will. Vancouver.
Epalpus signifera, Walker. Vancouver, Victoria.
Bombyliomyia abrupta, B and B. Victoria.
Myiocera simplex, Bigot. Victoria.
Sarcophaga sarraceniæ, Riley. Vancouver.
Calliphora erythrocephala, Meig. Victoria.
Calliphora viridescens, R. D. Pt. Renfrew, Glacier.
Lucilia Cæsar, Linn. Vancouver.
Lucilia sericata, Meig. Wellington.
Musca domestica, Fabr. Victoria.
Pollenia rudis, Fabr. Victoria.
Mesembrina Latreillei, R. D. Vancouver, Agassiz.
Pyrellia cyanicolor, Zett. Vancouver.
Pyrellia ænea, Zett. Vancouver.
Pseudopyrellia cornicina, Fabr. Vancouver.
Limnophora alone, Walker. Vancouver, Pt. Renfrew.
Phaonia septentrionalis, Stein. Glacier, Agassiz.
Hydrotæa dentipes, Fabr. Pt. Renfrew.
Aricia serva, Meig. Glacier.
Phorbia cinerella, Fall. Field.
Hyetodesia varipes, Coq. Victoria.
Mydæa signia, Walker. Vancouver.
Scatophaga furcata, Say. Victoria.
Scatophaga stercoraria, Linn. Pt. Renfrew, Vancouver.
Neuroctena analis, Fall. Victoria, Pt. Renfrew.
Tetanocera plebeja, Lw. Field.
Œdoparea glauca, Coq. Pt. Renfrew, Vancouver.
Seoptera vibrans, Linn. Vancouver.
Tephritis albiceps, Pt. Renfrew.
Palloptera jucunda, Lw. Vernon.
Sapromyza lupulina, Fabr. Victoria, Pt. Renfrew.
Sepsis violacea, Meig. Vancouver.
Borborus geniculatus, Macq. Vancouver.